

UNITED STATES NAVY
AVIATION SELECTION TESTS
EXAMINER'S MANUAL



Navmed P-5030

DIVISION OF AVIATION MEDICINE
BUREAU OF MEDICINE AND SURGERY
NAVY DEPARTMENT

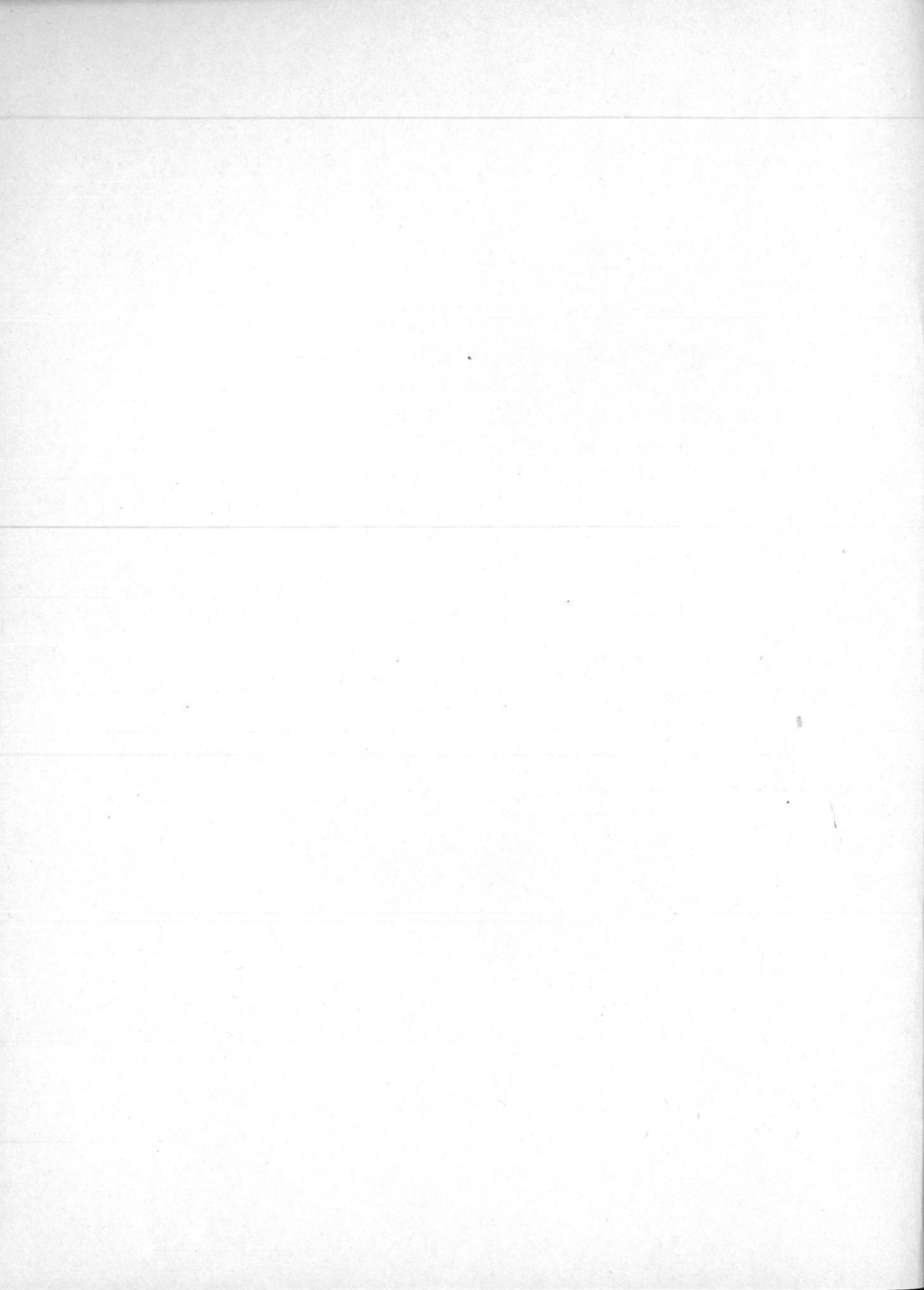


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INTRODUCTION

This Examiner's Manual introduces a new and substantially revised battery of Naval Aviation Selection Tests. Since the procedures depart considerably from those heretofore in effect, the new Manual should be read with care by all personnel concerned with the administration of the test battery to candidates for Naval Aviation Training.

PURPOSE

The testing procedures described in this booklet have been designed to select from available manpower those candidates who, on the basis of their abilities, interests, and personality characteristics, are most likely to succeed in flight training.

DEVELOPMENT AND STANDARDIZATION

The tests used for selecting flight candidates have been developed from extensive field studies on many tests. Each test has been given experimentally to a large number of applicants and the scores kept in a closed file until they could be correlated with the ultimate success or failure of the men involved. Whenever it became obvious that a particular test was failing to distinguish between ultimate passers and failers, that test was eliminated from further consideration. Tests were retained for further investigation only if the results showed (1) that they significantly differentiated passers from failers, and (2) that they added significantly to the prediction made by other promising tests. A series of cross-checks on large groups of flight students finally reduced the original battery to a combination of tests which satisfied both of the above conditions. The present revision results from a continuing appraisal of the effectiveness of the earlier battery and can be expected to significantly increase the predictive efficiency of the U. S. Navy Aviation Selection Tests.

DESCRIPTION OF TESTS

The U. S. Navy Aviation Selection Tests which are now being used are divided into two parts: (1) the AVIATION QUALIFICATION TEST (AQT), and (2) the FLIGHT APTITUDE RATING (FAR) battery.

PART 1

AVIATION QUALIFICATION TEST (A revision of the Aviation Classification Test)

This is a 60 minute test of general intelligence. Statistical survey has shown that this test is particularly adapted to the prediction of ground school performance. Men who score low tend to have difficulty in understanding complicated instructions and orders. There are two equivalent forms of this test, "Form 1" and "Form 2".

CANDIDATES WHO FAIL TO ATTAIN A MINIMUM QUALIFYING SCORE ON PART 1 ARE TO BE IMMEDIATELY ELIMINATED FROM FURTHER CONSIDERATION AND ARE NOT TO BE GIVEN PART 2. (NOTE: This elimination applies only to those stations and activities under the cognizance of CNARESTRA that are authorized to score tests locally. All other ships and activities will administer both Part 1 and Part 2 and forward test answer sheets to the Bureau of Medicine and Surgery for scoring.)

Important:

The use of letter grades, A, A-, B, B-, C, C-, D, D-, and E, to represent scores made on the tests has been discarded. Henceforth, scores made on the AQT and FAR will be represented by a NUMERICAL index on a graduated scale, '9 through 1', with 9 being the highest rating and 1 being the lowest rating. This change has been initiated to eliminate errors and misunderstanding occasioned by the previous use of minus (-) signs with letter grades.

PART 2

The FLIGHT APTITUDE RATING battery consists of the following three tests:

1. *Mechanical Comprehension Test (MCT):*

This is a 45-minute test dealing with ability to perceive physical relationships and handle familiar concepts of every day mechanics rather than with technical subject matter found in textbooks. There are seven forms of this test, of which, "Form 6" and "Form 7" are in current use.

2. *Spatial Apperception Test (SAT):*

This is a 10-minute test of ability to orient in space. Specifically, it is designed to measure ability to visualize the relationship between the attitude of a plane and the territory over which it flies. There are two equivalent forms of this test, "Form 1" and "Form 2".

3. *Biographical Inventory (BI):*

This is an untimed questionnaire containing elements of personal history, expressions of interests and attitudes, and selected informational items. No single item is heavily scored or significant in itself, but certain total patterns have been found to differentiate between successful and unsuccessful flight students.

Scores made on the three tests in Part 2 are combined into a single index called the FLIGHT APTITUDE RATING (FAR). The FAR, expressed in terms of a numerical grade, indicates the candidate's measured probability of success or failure in the flight training program.

RESPONSIBILITY

The flight surgeon (or the aviation medical examiner) is directly charged with the responsibility for the testing procedures described herein. It is expected that he will ordinarily take personal charge of the administration of the test battery. On occasions when other duties prevent this he may delegate responsibility for the actual administration of the tests to a Hospital Corpsman, Aviation Technician, or Yeoman who has been specially selected and thoroughly trained by him for such duties. In any case, he should at once make himself familiar with the contents of this manual.

Specifically, the flight surgeon's responsibilities include the following:

1. Maintenance of an adequate supply of test materials.
2. Exact conformity to the procedures outlined herein for giving the tests. It is essential that timing and instructions to the candidates be precisely as indicated in the manual. If they are not, results from the various stations will not be comparable, and the tests will not have been used fairly and impartially. It is the purpose of uniform instructions to insure that, wherever he applies, a candidate will have the same chance to demonstrate what he knows and that he will not be penalized or given extra assistance by small deviations from the usual examining procedures.
3. Accuracy of scoring. Precise scoring procedures will be explained in a separate manual. It is the purpose here to stress that it is the flight surgeon's responsibility to see to it that the precautions to be outlined against inaccuracy are in fact taken in every instance.
4. Prompt transmittal of the test papers and results to the Bureau of Medicine and Surgery. The prescribed method of transmittal of test papers to the Bureau is described in detail in a later section of this manual.
5. Security. Test booklets and filled-in answer sheets are classified RESTRICTED. Scoring keys are classified CONFIDENTIAL. These materials are to be handled in all respects as to transmission, use, stowage, and control of dissemination in accordance with current security regulations.

GENERAL INSTRUCTIONS FOR ADMINISTERING TESTS

1. Conditions for Testing

Testing shall be conducted in a location where candidates have proper lighting, a convenient space for writing, freedom from interruption and distraction, and adequate ventilation.

Seating shall be arranged with at least three feet between chairs to reduce the possibility of compromising answer sheets and to permit proctors to reach any examinee with a minimum of distraction. Every testing situation should have at least one proctor in addition to the examiner. Proctors shall be thoroughly familiar with testing instructions and procedures and shall assist the examiner in administering and supervising the testing. It is suggested that one proctor be assigned for each group of twenty applicants.

Exact timing of the tests is essential and can be accomplished by using regular timers. Prior to administering tests, the examiner and proctor shall familiarize themselves with the mechanics of such timing devices. Where such timers are not available ordinary wrist watches with sweep second hands may be used.

It is imperative that ONLY electrographic lead be used by the examinee in marking all answer sheets. Special electrographic pencils are provided with other testing materials.

2. Retesting

Applicants disqualified for naval flight training by virtue of failing to attain minimum scores on either Part 1 or Part 2 of the Navy Aviation Selection Tests, and who desire to be reconsidered for such training, may be permitted to apply for retesting after the lapse of *one full year* from the date of initial testing. Each candidate shall be queried as to whether he has previously applied for naval flight training, and/or taken the U. S. Navy Aviation Selection Tests.

3. Security of Testing Materials and Procedures

Personnel are prohibited from disclosing any information concerning the tests. Enlisted personnel assigned to administer tests should be required to study this manual thoroughly, observing all precautions required for classified materials. A strict accounting of all test materials must be made before and after each test administration. No applicant should be permitted to take any materials from the test room or to see a test after he has turned it in.

There are two reasons for this emphasis on the maintenance of the security and integrity of the tests:

- (1) To the extent that applicants learn about the tests before taking them, the test scores will lose their predictive value, and,
- (2) Even more important, "leakage" may result in inept applicants being selected for flight training. It is dangerous and unfair to the individual as well as to the Service to in any way assist to enter flight training a candidate who is not able to meet the established requirement unaided.

DETAILED INSTRUCTIONS FOR ADMINISTERING THE TESTS

Since the tests must, so far as possible, always be given under the same conditions, no change from these instructions is authorized, except that spoken instructions may be repeated, in order to insure that all candidates understand what they are to do. Spoken instructions are to be enunciated as clearly as possible.

1. Preparation for Testing

The examiner should prepare for the test period by insuring that sufficient supplies of test booklets, answer sheets, sharpened electrographic pencils, and plain scratch paper are on hand. The test booklets must be examined to see whether any unauthorized marks have been made on them during previous testing sessions. Any such marks must be carefully erased. The examiner must know the exact number of test booklets on hand at the beginning of the testing in order to account for them at the end of the testing.

The examiner should check the eligibility of the candidate for testing. Candidates who have been previously tested and found disqualified are not eligible for retesting until the lapse of one full year from the date of the initial testing.

2. Order of Testing

The revised U. S. Navy Aviation Selection Tests are divided into two parts, as follows:

PART 1

AVIATION QUALIFICATION TEST (AQT)

60 minute time limit

PART 2

MECHANICAL COMPREHENSION TEST (MCT)

45 minute time limit

SPATIAL APPERCEPTION TEST (SAT)

10 minute time limit

BIOGRAPHICAL INVENTORY (BI)

No time limit. Usually requires about 45 minutes

It is imperative that the order of testing as listed above be strictly adhered to. Part 1 is always to be given first and, where authorized, is to be scored prior to the administration of Part 2. Candidates who fail to meet the minimum qualifying score on the AQT are NOT to be given Part 2.

3. Administration of Tests

Give each candidate one electrographic pencil and one piece of plain scratch paper for any figuring he may have to do.

Give each candidate one answer sheet for the AQT.

SAY:

"Make no marks on this answer sheet until I tell you to do so."

There are two forms (Form 1 and Form 2) of the AVIATION QUALIFICATION TEST. Give a test booklet labeled "AQT-Form 1" to every other man in the group, i. e., men in alternate seats; give a test booklet labeled "AQT-Form 2" to each of the other candidates.

Note: If seating conditions are such that applicants cannot see each other's papers, all applicants may be given the same form of the test.

SAY:

"Do not open this test until I tell you to do so."

Proctors and examiner should check to see that directions are followed throughout the testing procedures.

SAY:

"Now take your answer sheet. Turn it to the side which provides spaces for your name and other information. Print your name in full in the blank provided. Be sure to print your last name first, then your first name, and then your full middle name. If you have no middle name, write 'none'. If you are a 'junior' write Jr. after your middle name. Be sure your name is clearly printed so that anybody can read it without trouble."

PAUSE

SAY:

"The next space where it says 'File or Service Number' is to be filled in only if you are NOW in the Navy. If your present status is that of Civilian, leave this space blank."

PAUSE

SAY:

"In the first space on the second line where it says 'Date' you are to write in today's date, giving the day of the month, the month, and the year in that order. This is... (Give day, month, and year in that order)."

In the next space where it says 'Date of Birth', write in the day, month, and year you were born.

In the next space, 'Place of Testing', you are to print in the name of this activity. This is... (Give name of activity)."

SAY:

"Now look at the small box in the middle of the page where it says 'Age' and fill in your age to the nearest year. If your last birthday was more than six months ago, put in your age at your next birthday.

Below the box where you wrote your age is a larger box labeled 'Education'. Decide which statement applies to you and make a check mark beside it in the small box provided. Now look at the larger box on the right labeled 'Present Status' and check the one that applies to you. Make no marks in the small boxes labeled 'Education' and 'Status'.

Now look at the two statements at the bottom of the page. If you are now taking the U. S. Navy Aviation Tests for the first time, check the first statement. If you have previously applied for naval flight training and failed to qualify on the Aviation Selection Tests, you must affirm that at least one full year has elapsed from the date of last testing by checking the second statement. If one full year has not elapsed, you are not eligible to apply for retesting at this time.

Now sign your name at the bottom of the page."

After all applicants have finished filling in the information side of the answer sheet, the examiner should then,

SAY:

"Are there any questions?"

PAUSE

SAY:

"Now turn your answer sheet over to the side which says 'Aviation Qualification Test'. Fill in the box labeled 'Form' at the top of the page. Write '1' or '2' whichever is printed at the upper right hand corner of your test booklet."

Hold up booklet and point to form number. Proctors check.

SAY:

"Do NOT write in the other boxes. Now look at the front of your test booklet and read through the instructions with me."

The examiner should now read aloud these instructions and make sure that the candidates understand what is required of them.

SAY:

"Are there any questions? No questions will be answered after the test begins."

Any questions may be answered ONLY by repeating parts of the instructions which apply.

SAY:

"All right: Turn to the first page of the test headed 'Sample Problems'. You will be given three minutes to read through pages 2 and 3. Make no marks on these pages, or on the answer sheet. This part does not count on your score. It is only for practice."

At the end of exactly three minutes,

SAY:

"STOP. Now we are ready to begin the test itself. You may refer back to the sample problems at any time during the test, if necessary. If your pencil breaks, raise your hand and you will be given a new one. All right, turn the page and begin."

The examiner should now write down the exact time of starting the test as an additional check to make sure that the candidates are given the right amount of time. During the test session, the examiner and proctor should check to see that the candidates are making solid black marks on the answer sheet, and that they are not making any marks on the test booklets.

At the end of exactly *sixty* minutes,

SAY:

"STOP. Make no more marks on your answer sheet. Close the test booklet. Now pass in your test booklets."

The examiner should quickly collect all test booklets. An immediate count should be made to insure the return of all booklets.

SAY:

"Now pass in your answer sheets. Also pass in the scratch paper which was provided, whether or not you made any marks on it. Leave your pencils on the desk."

This completes Part 1 of the U. S. Navy Aviation Selection Tests. The examiner may now excuse the candidates for a brief rest period or allow them to remain in the room (as conditions permit).

Note: During this period, activities so authorized shall now score the AVIATION QUALIFICATION TEST. (See 'Manual of Scoring Instructions and Conversion Tables for the U. S. Navy Aviation Selection Tests'). IN NO INSTANCE ARE THE ANSWER SHEETS TO BE SCORED IN THE PRESENCE OF THE CANDIDATES, NOR SHALL THEY BE TOLD THE SCORES MADE ON THE TESTS, EXCEPT THAT THEY QUALIFIED OR DISQUALIFIED. Candidates who fail to attain the minimum grade on the AQT are to be considered disqualified and are NOT to be given Part 2.

Reassemble candidates for Part 2.

SAY:

"You have completed Part 1 of the Aviation Selection Tests. We will now proceed with Part 2."

Give each candidate one answer sheet for MCT (First Test), SAT (Second Test) and BI (Third Test). The same answer sheet is used for all three tests.

SAY:

"Make no marks on this answer sheet until I tell you to do so."

Pass out test booklets for the MECHANICAL COMPREHENSION TEST (MCT). Distribute the two forms (Form 6 and Form 7) alternately so that each candidate has a form different from that of the person next to him. (If candidates are seated sufficiently far apart, all may be given the same form).

SAY:

"Make no marks on these booklets, and do not open the test booklets until you are told to do so."

SAY:

"Turn your answer sheet to the side headed 'BIOGRAPHICAL INVENTORY'. At the top of the page where it says 'Name', print your name in full in the blank provided. Be sure to print your last name first, then your first name, and then your middle name. If you have no middle name, write 'none'. If you are a 'junior' write Jr. after your middle name. Be sure your name is clearly printed."

PAUSE

SAY:

"In the blank where it says 'Date', write in today's date, giving the day of the month, the month, and the year in that order. This is... (Give day, month, year in that order.) On the next line where it says 'Place of Testing', you are to print the name of this activity. This is... (Give name of activity.) The space 'File or Service Number' is to be filled in only if you are now in the U. S. Navy, otherwise leave blank. Now turn your answer sheet over to the side headed 'MECHANICAL COMPREHENSION TEST'. Fill in the box labeled 'Form' at the top of the page on the left. Write '6' or '7', whichever is printed at the upper right hand corner of your test booklet."

Hold up booklet and point to form.

"Do not write in the other boxes. Now look at the front of your test booklet and read through the instructions with me."

The examiner should now read aloud these instructions and make sure that the candidates understand what is required of them. After reading aloud these instructions,

SAY:

"Are there any questions? No questions will be answered after the test begins."

Any questions may be answered ONLY by repeating parts of the instructions which apply. The examiner is NOT to explain the answers to the sample problems.

SAY:

"All right. You will be given 45 minutes to work on the test itself. Be sure to mark your answers in the proper spaces on the LEFT hand side of the answer sheet.

Raise your hand if your pencil breaks and you will be given a new one. Turn the page and start work immediately."

The examiner should now write down the exact time of starting the test and add 45 minutes to determine when the candidates are to be stopped.

At the end of exactly forty-five minutes,

SAY:

"STOP. Make no more marks on your answer sheets. Close the test booklet. Now pass in your test booklets, but keep your answer sheets and pencils."

All test booklets are to be collected and accounted for.

SAY:

"Now the test booklets for the SPATIAL APPERCEPTION TEST will be passed out. Again, make no marks on these booklets, and do not open the test booklets until you are told to do so."

SAY:

"Those who have taken Form 6 of the MCT, hold up their hands."

Pass Form 1 of the SAT to those who have taken Form 6. Repeat the question for Form 7 and pass out Form 2 of the SAT to those who have taken Form 7. Proctors check.

SAY:

"Look at the form number in the upper right hand corner of the test booklet. If you had Form 6 on the MCT, you should now have Form 1 of the SAT. If you had Form 7 of the MCT you should have Form 2 of the SAT. Does everyone have the right form of the SAT?"

There are two forms (Form 1 and Form 2) of the SPATIAL APPERCEPTION TEST (SAT). MAKE SURE THAT FORM 1 IS GIVEN TO ALL CANDIDATES WHO HAD FORM 6 ON THE MCT, AND THAT FORM 2 IS GIVEN TO THOSE WHO HAD FORM 7 ON THE MCT. (Taking this precaution will greatly simplify the scoring of the tests.)

The examiner should make sure that all candidates have the proper form before proceeding.

SAY:

"All right. Now fill in the box labeled 'Form' at the top of the page on the right. Do not write in the other boxes. Now look at the front page of your test booklet and again read the instructions with me."

After reading aloud these instructions,

SAY:

"Are there any questions? No questions will be answered after the test begins."

Again, questions may be answered ONLY by referring to the parts of the instructions which apply. The examiner is NOT to explain the answers to the sample problems.

SAY:

"All right. Turn to the first page headed 'SPATIAL APPERCEPTION TEST'. You will be given five minutes to read through pages 2, 3 and 4, and work the sample problems. This part does not count on your score. It is only for practice."

At the end of exactly five minutes.

SAY:

"STOP. We are now ready to begin the test itself. You may refer back to the sample problems at any time, if necessary. If your pencil breaks, raise your hand and you will be given a new one. You will have exactly ten minutes to work on this test. All right, turn the page and begin."

The examiner should write down the exact time of starting the test and add ten minutes to determine when the candidates are to be stopped.

At the end of exactly ten minutes,

SAY:

"STOP. Make no more marks on your answer sheets. Close the test booklet. Now pass in your test booklets, but keep your answer sheets and pencils."

All test booklets are to be collected and accounted for.

SAY:

"There is one more test in this battery. We will now pass out the test booklets for the BIOGRAPHICAL INVENTORY. Again, make no marks on these booklets, and do not open the test booklets until you are told to do so."

Pass out test booklets for the BIOGRAPHICAL INVENTORY (BI). There is only one form (Form 4) of this test in current use.

SAY:

"Turn over your answer sheet to the side headed 'BIOGRAPHICAL INVENTORY'. Fill in the box labeled 'Form' at the top of the page. Do not write in the other boxes. Now look at the front cover of the test booklet and read through the instructions with me."

After reading aloud these instructions,

SAY:

"All right. Turn the page and begin. Pass your papers in whenever you are through."

There is no time limit for this test. The examiner should not collect any paper until he is sure that the candidate has had an opportunity to answer every question on the BIOGRAPHICAL INVENTORY. The examiner should not answer any questions during the test, except to state that the candidates are to use their best judgment.

At the end of the test, the examiner should collect, count, and secure all test materials ---test booklets, answer sheets, and electrographic pencils. All test materials must be strictly accounted for.

Forwarding of Test Answer Sheets

1. Answer sheets (or groups of same) for each applicant tested shall be sent IMMEDIATELY to the Bureau of Medicine and Surgery, Code 537, Navy Department, Washington 25, D. C.
 2. DO NOT fold, staple, or secure answer sheets by bending corners. These forms are scored in the Bureau by machine and must be in perfect condition.
 3. Answer sheets for each applicant are to be assembled together and may be fastened by a paper clip.
 4. Answer sheets should be backed by stiff cardboard or otherwise suitable material of sufficient size to protect paper edges, and mailed in a franked envelope (size 9- $\frac{1}{2}$ x 12- $\frac{1}{2}$). (DO NOT send by registered mail.)
 5. DO NOT include Standard Form 88, Report of Flight Physical Examination, in the same envelope with the answer sheets.
 6. Forwarding of answer sheets shall not await the completion of the flight physical examination.
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